

## LOW LEVEL RADIOACTIVE WASTE: A JOURNALIST'S PERSPECTIVE\*

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**E**ARLIER today we heard many excellent descriptions of the risks involved with transport and disposal of low level radioactive wastes. We heard from all that if the rules are followed, risk to the public is far, far below risks the public assumes voluntarily and involuntarily in normal everyday activities. In fact, the risks are so low, Dr. Houk suggests, that they may be estimated but they cannot be reasonably detected in the general population.

As an environmentalist who has not hesitated to sue polluters in New Jersey, I believe his arguments to be correct.

More important, as Dr. Eisenbud so eloquently describes it, even occasional gross mismanagement of the existing disposal sites has resulted in almost vanishingly small risks to the general population and to site employees.

Dr. Maillie notes that waste volumes being shipped have declined as well. I live in a modest, three-bedroom house in New Jersey. Its total volume is about 20,000 cubic feet. That's about average for three-bedroom houses in this part of the country. I calculated several years ago that the entire volume of low level radioactive waste produced in New Jersey is about equal to two house-fulls a year. That's in line with what New York State is producing. New York State produces a volume about twice New Jersey's, with twice the population.

I spend some time talking about this to local groups. The public's response to all this is "So what? We still don't want the stuff in our back yards." The professionals responsible for working with radioactive materials tend to blame the public's chief information conduit, the press. Professionals also tend to complain bitterly about politicians' moves to steer anything remotely

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unsavory away from their own constituents' back yards. We in the press must report what the politicians are saying, reinforcing the cycle. Rational voices are certainly quoted, but generally not as often as irrational voices.

To take an example that is even more understandable by the general public, most of you probably remember the garbage barge that wandered from Long Island down to the Gulf of Mexico, and back. The barge was anchored in New York Harbor during the spring of 1987 when two of our students at the Graduate School of Journalism got married. Part of the reception was held on a boat that went out to The Narrows and circled the barge. The instantaneous reaction from the guests, mostly newly graduated journalism students who had several years of experience before coming to Columbia: "It seems so small." "It looks bigger on TV." "What's the argument here?" "What's the big deal?" It seems that few journalists had ever come out to see the barge. What they had seen were wide-angle television shots, taken from helicopters. This made the barge seem much bigger than it actually was.

What was the big deal? Essentially, as soon as one politician turned down the barge's waste, it was going to be turned down everywhere else. That's a simple fact. No amount of rationality or risk assessment was going to change it. And the barge contained only normal household and commercial waste!

Dr. Eisenbud said this morning that the great problem is the difference in perception of risk between the public and the scientific community. The barge example, for one, forces me to disagree. It is certainly true that the public misperceives the magnitudes of various risks. Of the dozens of studies at hand, I'll quote just one, by Slovic, Fischhoff, Layman, and Coombs<sup>1</sup> because it predates Three Mile Island. The authors note that dramatic risks are less acceptable than uninteresting ones. To put it another way, people judge an event as more likely to occur if it is easy to imagine or to recall. It is easy to imagine harm from toxic wastes. And it is easy to recall nuclear weapons and Three Mile Island and to associate them with low level radioactive wastes.

Why, then, does the public ignore the vastly more serious (comparatively) dangers lurking in natural radon gas? Why doesn't radon conjure up visions of mushroom clouds? I believe the reason is less one of public misperception of risk than it is of public perceptions of fairness and competence among public officials.

Dr. Covello touched on this a bit. He said he has identified 35 or 40 sources of public unease with the process. But the three biggest are the involuntary nature of the process (waste is being forced upon them), a feeling of lack of control over one's destiny, and perceived unfairness in the whole process.

I believe that this comes down to one word: Fairness.

If you come away with anything from this conference, you as professionals must understand this public perception of fairness.

“Geological radon has no villain. It’s God’s radon. It strikes people in their homes, traditionally safe turf,” says Peter Sandman, head of the Rutgers University environmental communications program.<sup>2</sup> “Risk for the experts means how many people will die, but risk for the public means that plus a great deal more. Is it fair or unfair? Is it voluntary or coerced? Is it familiar or high-tech and exotic?”

The federal Environmental Protection Agency’s radon action level of 4 picocuries per litre is, we are told, about as risky as smoking eight cigarettes a day. That’s a significant risk even assuming that the risk has been conservatively calculated and is thus perhaps overstated, especially since young children not normally exposed to cigarettes are affected.

As for competence among public officials, we have only to look at scenes from everyday life. New York City officials, for instance, are absolutely incapable of maintaining roads and bridges within their care. They are only marginally capable of maintaining public order, although New York City has three times the number of uniformed law enforcement officers per capita as any other major city in America. It should be noted that New York City is also among the safer large American cities, of course, but far less safe for people and property than all but about 20 of them. Residents of other cities have their own horror stories.

Few members of the general public are familiar with the inner workings of the Nuclear Regulatory Commission. But they are well aware that the Commission can, with no required local input, change the rules of the game. As fears of another Three Mile Island have receded, the Commission has, for instance, loosened its rules for local participation in evacuation plans for operating nuclear powerplants. The Nuclear Regulatory Commission could redefine “low level” waste in the regulatory guides associated with 10 CFR 61.

I can argue, as I have in public hearings in New Jersey, that such a move on the part of the Commission is all but unthinkable these days, and that—in any case—unregulated radioactive releases from burning fossil fuels are 100 to 1,000 times larger than currently permitted by the Commission. The counter-argument is always, “Yes, but what about 20 or 30 years from now?” But don’t we have to trust government at some level? Not all officials—or even many officials—can be venal and incompetent.

Although I am educated as a physicist and studied nuclear physics with Dr. Herta Lang at Rensselaer Polytechnic Institute, I have also studied how complex products and structures are designed and built.<sup>3,4</sup> Long Island Light-

ing Company's Shoreham nuclear power plant was built by workers and construction organizations strongly influenced by organized crime. The public record is filled with instances of destruction of construction records and physical intimidation of inspectors there.

Under the circumstances, it is impossible to measure risks associated with the plant's possible operation and ludicrous to think about putting it into service. Parenthetically, anti-nuclear activists have made the same allegations at many other sites, but the magnitude of Shoreham's documentation and intimidation problems is simply unparalleled at any other plant. Also, I do not believe, based on my examination of the record, that operating the Shoreham plant poses an unacceptable health risk to the public. It is just that the chance of failure at the plant—with a subsequent huge increase in cleanup and decommissioning costs—far outweighs the value of the electric power the plant is ever likely to produce. In other words, the economic risk (a \$5 to \$10 billion cleanup cost) seems greater than the economic benefit (trying to save the \$5 billion in sunk costs).

To the extent that scientists who deal with radioactivity in other venues assure the public that the plant is safe, they risk squandering their credibility. An example from this morning's session typifies the process. Just after Dr. Covello finished saying scientists should not quote national numbers to justify specific situations, we had a question from the audience.

A member of the audience complained about Long Island Lighting's Shoreham nuclear power plant. Dr. Houk, who is a brilliant researcher who has helped produce many studies—including studies we give our students at Columbia—responded by noting how much safer nuclear power is compared to burning fossil fuels like coal.

He's right, of course, in general. But he misses the point. Shoreham is not the average nuclear power plant. Its history also, once again, highlights the issue of fairness. The plant was sited in the early 1960s with absolutely no opposition in what was then low- to moderate-income agricultural country, near a far less preferable test runway for Grumman, a major Long Island employer.

Two years later Long Island Lighting Company made its major mistake with regard to Shoreham. It decided that it needed another nuclear plant, and decided to site it in the high-income community of Lloyd Harbor. Residents there immediately hired a savvy attorney, fought the Lloyd Harbor plant to a standstill, and then decided that even Shoreham was too close.

Jay Gould of Public Data Access, Inc. has documented perfectly that waste sites (not necessarily nuclear) are far more likely to be located in poor areas than in wealthy ones, and in areas where a high percentage of the inhabitants

are black rather than white.<sup>5</sup> By the way, I do not accept all his conclusions. Dr. Gould has also suggested that this has led to health problems in such areas. I do not regard the health data as persuasive.

In New Jersey, for instance, public officials stumbled badly when they tried to move essentially innocuous low level radioactive waste from Montclair, a middle- to upper-income community, to Vernon Township, a middle- to lower-income community. That New Jersey's Department of Environmental Protection claimed to have done certain scientific studies when in fact it had not and that it proposed diluting the waste rather than concentrating it were secondary to the issue of fairness: A wealthier community was getting rid of a problem by dumping it into a lower-income community, and state officials were intending to do the deed with no public hearings, input, or control from the target community's residents.

The issue of fairness overwhelmed the issue of risk. The risk was extremely low. In fact, the waste had so little radioactivity that the federal government did not want to use valuable disposal space for it.

How can the professionals responsible for dealing with low level radioactive waste respond to this? Not by pinning their hopes upon people like me, who try to teach the public about risk. For every newspaper or broadcast story any reporter does detailing the risk, we do 10 or 20 or 30 quoting some politician emotionally assuring his constituents that the risk will be shoved into someone else's backyard because his community has been targeted unfairly.

Instead, as hard as this is to swallow, professionals must open the already cumbersome siting and licensing procedure to even more public scrutiny, and must seek to isolate the process in so far as possible from legislative influence while opening it to this local scrutiny. A good model to follow is one for non-nuclear wastes, New Jersey's Hazardous Waste Facilities Siting Act, which mandates an independent siting commission that has garnered a reasonable amount of public trust.

But do not expect miracles. New Jersey, despite five years of trying, is only now on the verge of finding a site for its hazardous wastes!

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